

ABSTRACT

**THE EFFECT OF HPMC K4M CONTENT ON VIABILITY AND
GASTRIC RESISTANT OF *Lactobacillus casei* FNCC 0090
MICROPARTICLE WITH L TYPE METHACRILIC ACID
COPOLYMER MATRIX**

Rebhika Lusiana

Probiotics are living microorganisms that can provide health benefits on 10^6 - 10^7 cfu/gram. *Lactobacillus casei* is one of probiotic that unstable in gastric acid despite having intestinal target of action. The delivery system that can be used to deliver *Lactobacillus casei* to its target site in the intestine is a microparticle that can be done by spray drying method and following *pulsatile* release. This research was investigate the effect of 0.0%, 0.2%, 0.3%, and 0.4% HPMC K4M content on viability and gastric resistant of *Lactobacillus casei* in microparticles with 1% L-type methacrylic acid copolymer matrix after spray drying process. The morphology of microparticle in four formulas was described as follows: formula I had a spherical form with shallow basin. Formula II, III, and IV with HPMC K4M content level of 0.2%, 0.3%, and 0.4% respectively, known to be less spherical and had a deep-seated, shrunken crease. The percentage of bacterial viability of the formula I, II, III, and IV \pm standard deviation were 78.95 ± 4.45 , 77.54 ± 4.36 , 79.45 ± 1.14 , and 89.66 ± 3.86 respectively, which showed a percentage increase in viability of *Lactobacillus casei* significantly. Gastric resistant test results indicated that the percentage of acid protection from each of the formula decreased from formulas I, II, III, and IV were 63.85 ± 8.21 , 66.75 ± 14.13 , 63.53 ± 12.02 , dan 59.82 ± 14.63 as HPMC levels increase. Statistically, it showed no significant difference from any formula. The research conclude that microparticle *Lactobacillus casei* with L-type methacrylic acid copolymer matrix shows good viability and gastric resistant for intestinal targeted site drug delivery system.

Keywords : L-Type Methacrylic Acid Copolymer, HPMC K4M, microparticle, *Lactobacillus casei*, viability test